



**Nebraska Public Power District**

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NLS2003127

December 19, 2003

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555-0001

Subject: Licensee Event Report No. 2003-006  
Cooper Nuclear Station, NRC Docket 50-298, DPR-46

The subject Licensee Event Report is forwarded as an enclosure to this letter.

Sincerely,

  
John Christensen  
Plant Manager

/rar  
Enclosure

cc: Regional Administrator  
USNRC - Region IV

Senior Project Manager  
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector  
USNRC

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## LICENSEE EVENT REPORT (LER)

(See reverse for required number of  
digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC

1. FACILITY NAME  
Cooper Nuclear Station2. DOCKET NUMBER  
050002983. PAGE  
1 OF 34. TITLE  
Manual Reactor Scram Initiated due to Transmission Line Structure Fire

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	28	2003	2003	006	00	12	19	2003	FACILITY NAME	DOCKET NUMBER
										05000
									FACILITY NAME	DOCKET NUMBER
										05000
9. OPERATING MODE		1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)							
10. POWER LEVEL		075	20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
			20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)	50.73(a)(2)(x)
			20.2203(a)(1)			50.36(c)(1)(i)(A)		X	50.73(a)(2)(iv)(A)	73.71(a)(4)
			20.2203(a)(2)(i)			50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)	73.71(a)(5)
			20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)	OTHER
			20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)			50.73(a)(2)(i)(A)			50.73(a)(2)(v)(D)	
			20.2203(a)(2)(v)			50.73(a)(2)(i)(B)			50.73(a)(2)(vii)	
			20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)	
			20.2203(a)(3)(i)			50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)	

## 12. LICENSEE CONTACT FOR THIS LER

NAME  
Paul V. Fleming, Licensing and Regulatory Affairs ManagerTELEPHONE NUMBER (Include Area Code)  
(402) 825-2774

## 13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

## 14. SUPPLEMENTAL REPORT EXPECTED

YES (If yes, complete EXPECTED SUBMISSION DATE) X NO

## 15. EXPECTED SUBMISSION DATE

MONTH DAY YEAR

## 16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On October 28, 2003, at 0130 hours, a fire occurred on a wooden transmission structure located between the main generator output and the 345KV switchyard. Due to the imminent loss of the main generator output line to the switchyard, a manual scram was performed at 0200 hours. All control rods inserted and Primary Containment Isolation System Group Isolations for Primary Containment, Reactor Water Cleanup and Secondary Containment initiated as expected due to vessel level shrink. The Emergency Core Cooling Systems did not initiate. During water level recovery an overfeed condition caused the operating Reactor Feedwater pump to trip and a second manual scram was inserted in anticipation of a low level scram signal. Normal shutdown procedures were entered at 0300 hours and a vessel cool-down was initiated. The transmission structure fire was reported out at 0647 hours.

The fire occurred when dust accumulation on the insulators and structure became wetted and created a path for stray electrical currents from phase to phase, or phase to ground across the wooden cross arm.

The cause of this event is the failure to properly ground the insulator strings on the wooden structure.

The damaged wooden structure and associated line disconnect switch were removed on October 30, 2003. Grounding cables were installed on a similar structure on November 24, 2003.

## LICENSEE EVENT REPORT (LER)

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Cooper Nuclear Station	05000298	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		2003	006	00	

## 17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

## PLANT STATUS

Cooper Nuclear Station (CNS) was in Mode 1 (Run) at 75% power at the time of the manual reactor scram. Reactor power had been lowered from 100% due to the imminent loss of the main generator output line to the switchyard. Diesel Generator 2 (EISS:DG) was out of service for planned maintenance.

## BACKGROUND

CNS is connected to the Mid-Continent Area Power Pool through 345 kV and 161 kV buses (EISS:BU) located in independent switchyards adjacent to the station. Connections to the 345 kV switchyard include the generator main transformer bank (EISS:XFMR), a 345/161 kV auto-transformer connecting CNS 345 kV and 161 kV substations and five 345 kV transmission lines. Circuit breakers (EISS:52) are installed in the circuit to separate the connections to the 345 kV buses. Disconnect switches (EISS:DISC) are provided on each side of each circuit breaker. A line disconnect switch is provided on each of the five 345 kV lines and the station main transformer. The line disconnect switch between the generator main transformer bank and the switchyard was provided for flexibility during required maintenance activities.

## EVENT DESCRIPTION

On October 28, 2003, at 0130 hours, the Control Room was notified of a fire on a transmission structure located between the main generator output and the 345 kV switchyard. Due to the imminent loss of the main generator output line to the switchyard, a rapid power reduction was initiated, Station loads were transferred to the Startup transformer and a manual scram was performed at 0200 hours. All control rods inserted and Primary Containment Isolation System (PCIS) (EISS:JM) Group Isolations 2 (Primary Containment), 3 (Reactor Water Cleanup) and 6 (Secondary Containment) initiated as expected due to vessel level shrink. The Emergency Core Cooling Systems did not initiate. Mode 3 (Hot Shutdown) was entered at 0201 hours.

After the normal vessel level shrink, water level recovery resulted in an overfeed condition which tripped the operating Reactor Feedwater pump. During restoration of the feedwater pump to service, the vessel water level lowered and a second manual scram was inserted in anticipation of a low level scram signal.

Normal shutdown procedures were entered at 0300 hours and a vessel cool-down was initiated.

The transmission structure fire was reported out at 0647 hours.

## BASIS FOR REPORT

This event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) as "any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section." The following systems from paragraph (a)(2)(iv)(B) actuated during this event: Reactor Protection System and PCIS Groups 2, 3 and 6.

## CAUSE

The transmission structure fire occurred when dust accumulation, attributed to nearby crop harvesting activities, on the insulators and structure cross member became wetted during high fog or light rain/mist conditions. This condition created a path for stray electrical currents from phase to phase, or phase to ground. The natural resistance in the cross member material generated sufficient heat to cause the fire.

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The root cause of the event is the failure to properly ground the insulator strings on the wooden structure cross member.

## SAFETY SIGNIFICANCE

There is no impact on Probabilistic Risk Assessment (PRA) assumptions due to this event. All equipment responded as expected and DG 2 unavailability is captured by the average test and maintenance terms utilized in the PRA model. The PRA model assumes a frequency of once per year for transients of this type. This event alone has a negligible impact on this assumed frequency of occurrence. The Conditional Core Damage Probability (CCDP) for this event with DG 2 unavailable was  $7.19\text{E-}07/\text{year}$ . The risk incurred during the manual scram and subsequent reactor shutdown was less than  $1\text{E-}6$  CCDP and is not risk significant.

This event is not considered a Safety System Functional Failure as defined in NEI 99-02, Revision 2, Regulatory Assessment Performance Indicator Guideline.

## CORRECTIVE ACTIONS

## Immediate Action

A manual scram was inserted to de-energize the generator main transformer output line and the fire was extinguished by 0647 hours on October 28, 2003.

A visual inspection of a similar 345 kV structure identified that the insulator strings on that structure were not grounded. The inspection was performed on October 28, 2003.

Insulator strings on additional 345 kV transmission structures were verified by design to be grounded.

The damaged wooden structure and associated line disconnect switch on the main generator output line were evaluated and determined to not be required. The structure and line disconnect switch were removed. This action was completed on October 30, 2003.

## Long Term Actions

Grounding of the insulator strings on the identified 345 kV structure was completed on November 24, 2003.

## PREVIOUS EVENTS

LER 2003-004, "Manual Reactor Scram due to Main Turbine High Vibration," reported a manual initiation of the Reactor Protection System.

**ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS**Correspondence Number: NLS2003127

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing & Regulatory Affairs Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
None	N/A